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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,098	11/26/2003	Dan Avidor	29250-001075/US	6195

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HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 8910
Reston, VA 20195

EXAMINER

NGUYEN, DAVID Q

ART UNIT	PAPER NUMBER
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2617

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/721,098

Applicant(s)

AVIDOR ET AL.

Examiner

David Q. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-22 is/are allowed.
- 6) ☒ Claim(s) 1,2,5-18 and 23-26 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-2 and 5-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Ofuji et al (US 20030181163 A1).

Regarding claim 1, Ofuji et al discloses a method of determining a beam to be generated for transmitting information to a user, comprising: selecting a user from a user population based on a parameter that is tracked for each user in the user population (see pars. 0075-0079); and determining a preferred beam to be generated for the selected user (see pars. 0075-0079).

Regarding claim 2, Ofuji et al also mentions wherein the tracked parameter is a waiting time for each user that represents a duration of time since the user has received its last packet (see pars. 0075-0079).

Regarding claims 5-7, Ofuji et al also mentions wherein the tracked parameter is a short term throughput for each user calculated using a filtering process that is dictated by a given application (see pars. 0075-0079); wherein the tracked parameter is a short term throughput normalized by a long term throughput for each user, the short term throughput calculated based on a given application (see pars. 0075-0079); wherein the determining step includes determining

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the preferred beam to be generated based on past information received from the selected user (see pars. 0075-0079).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-18 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ofuji et al (US 20030181163 A1) in view of Tong et al (US 2001/0034236 A1).

Regarding claim 8, Ofuji et al does not mention determining step including determining a running average data rate for each beam of a finite plurality of selectable beams based on past reports that, for each beam, have been previously received from the selected user, and selecting a beam having the highest running average data rate as the preferred beam. However, Tong et al. mention determining step including determining a running average data rate for each beam of a finite plurality of selectable beams based on past reports that, for each beam, have been previously received from the selected user, and selecting a beam having the highest running average data rate as the preferred beam (see par. 0068). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teaching of Tong et al. to Ofuji et al in order to apply priorities for packets to be transmitted to priority users.

Regarding claim 9, Ofuji et al does not mention updating information for determining a preferred beam for a given user in a current timeslot based on information used for determining

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the preferred beam in the previous timeslot. However, Tong et al. discloses updating information for determining a preferred beam for a given user in a current timeslot based on information used for determining the preferred beam in the previous timeslot (see pars. 0054-0057). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teaching of Tong et al. to Ofuji et al in order to determine the best beam upon which to schedule forward link transmission to the user terminal.

Regarding claim 10, Ofuji et al discloses a method for receiving a transmission, comprising: selecting a user from a user population based on a parameter that is tracked for each user in the user population (see pars. 0075-0079); generating a preferred beam for the selected user (see pars. 0075-0079). Ofuji et al does not mention scheduling a user in the user population to receive a next transmission, based on the preferred beam. However, Tong et al. discloses scheduling a user in the user population to receive a next transmission, based on the preferred beam (see pars. 50-51). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teaching of Tong et al. to Ofuji et al in order to use priorities for packets to be transmitted to users.

Regarding claim 16, Ofuji et al discloses a method of transmitting information to a user, comprising: selecting a user from a user population based on a parameter that is tracked for each user in the user population (see pars. 0075-0079); generating a preferred beam for the selected user (see pars. 0075-0079). Ofuji et al does not mention transmitting a pilot signal to the user population using the preferred beam; scheduling a user based on feedback received in response to the pilot signal; and transmitting information on the preferred beam to the scheduled user. However, Tong et al. discloses transmitting a pilot signal to the user population using the

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preferred beam (see pars. 0049-0051); scheduling a user based on feedback received in response to the pilot signal (see pars. 0049-0051); and transmitting information on the preferred beam to the scheduled user (see pars. 0049-0051). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teaching of Frank to Ofuji et al in order to use priorities for packets to be transmitted to users.

Regarding claim 23, Ofuji et al discloses a method of improving system throughput while reducing packet delay for users of a wireless communication system, comprising: selecting a user from a user population based on a parameter that is tracked for each user in the user population (see pars. 0075-0079). Ofuji et al does not mention determining a preferred beam for the user so as to maximize the selected user's chances to be scheduled to receive the next packet, the preferred beam used for transmitting a pilot signal for scheduling a user in the user population to receive a next transmission on the preferred beam. However, Tong et al. discloses determining a preferred beam for the user so as to maximize the selected user's chances to be scheduled to receive the next packet, the preferred beam used for transmitting a pilot signal for scheduling a user in the user population to receive a next transmission on the preferred beam. (see pars. 50-51). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teaching of Tong et al. to Ofuji et al in order to use priorities for packets to be transmitted to users

Regarding claim 11, Tong et al. also mentions wherein the determining step including determining a running average data rate for each beam of a finite plurality of selectable beams based on past reports that, for each beam, have been previously received from the selected user,

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and selecting a beam having the highest running average data rate as the preferred beam (see pars. 0049-0051 and 0066-0068).

Regarding claims 12, 17 and 26, Ofuji et al does not mention wherein the step of scheduling further includes: transmitting a pilot signal to the user population using the preferred beam; receiving feedback from each user of the user population, the feedback including information relates to a maximum supportable data rate for the user; and running a scheduling algorithm to prioritize the user population for receiving a next transmission in a current timeslot. However, Tong et al. discloses transmitting a pilot signal to the user population using the preferred beam; receiving feedback from each user of the user population, the feedback including information relates to a maximum supportable data rate for the user; and running a scheduling algorithm to prioritize the user population for receiving a next transmission in a current timeslot (see pars. 0049-0051 and 0066-0068). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teaching of Tong et al. to Ofuji et al in order to use priorities for packets to be transmitted to users.

Regarding claim 13, Ofuji et al mentions wherein the selected user has been moved up in priority to receive the next transmission based on its feedback, the selected user's maximum supportable data rate corresponding to the preferred beam (see pars. 0075-0079).

Regarding claim 18, Ofuji et al mentions wherein generating the preferred beam is designed to enhance the selected user's priority to receive the next transmission based on maximum supportable data rate information contained in the selected user's feedback (see pars. 0075-0079).

Regarding claims 14-15 and 24-25, Ofuji et al also discloses wherein the tracked parameter is a waiting time for each user that represents a duration of time since the user has received its last packet, and the selected user is the longest waiting user (see pars. 0064-0067); wherein the tracked parameter is a short term throughput normalized by a long term throughput for each user and calculated as a ratio of the short term throughput to the long term throughput, and the selected user is the user having the lowest ratio (see pars. 0064-0067).

Allowable Subject Matter

3. Claims 3-4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 3-4, the method of Ofuji et al (US 20030181163 A1) fail to render obvious wherein the selecting step further includes: initializing a timeslot counter, for a given timeslot, emptying an exclusion window, the exclusion window configured for preventing a beam from continually illuminating a user having poor channel conditions; and searching, at the beginning of the given timeslot, the user population for the longest waiting user that is outside the exclusion window as specified in the claim.

4. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 19, Ofuji et al (US 20030181163 A1), Frank (US2004/0063468A1), Tong et al. (US 2001/0034236A1), and Teo et al. (US 2002/0086708A1) and Lim et al. (US 2004/0100941 A1) all discloses a method of transmitting information to a user comprising determining a beam to be generated for a user selected based on a parameter and a scheduling

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transmission information to a user based on feedback received from all users as claimed. The above prior art of record, however, fail to disclose or render obvious steps: initializing, at the beginning of a given timeslot, a timeslot counter and an exclusion window that prevents a beam used for transmitting the information to a given user having poor channel conditions from continually illuminating the user; searching, within the given timeslot, the user population for a longest waiting user that is outside the exclusion window as a selected user as specified in the claim.

Claims 20-22 depend on claim 19. Therefore, they are allowable.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Frank (US 2004/0063468A1) discloses method and apparatus for using switched multibeam antennas in a multiple access communication system.

Teo et al. (US 2002/0086708A1) teaches apparatus and method for OFDM data communications.

Lim et al. (US 2004/0100941 A1) teaches adaptive packet transmission method for transmitting packets in multibeam satellite communication system.

Dent (US 6377558 B1) teaches multi-signal transmit array with low intermodulation.

Reudink et al. (US 2004/0235527 A1) teaches high speed fixed wireless voice/data systems and methods.

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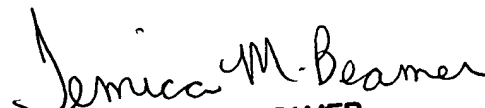
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Q. Nguyen whose telephone number is 571-272-7844.

The examiner can normally be reached on 8:30AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOSEPH H. FEILD can be reached on (571)272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


David Nguyen


TEMICA BEAMER
PRIMARY EXAMINER